

REMARKS

Summary of the Official Action

The foregoing amendment and remarks that follow are responsive to the Office Action mailed April 6, 2006. In that Office Action, the Examiner rejected Claims 1-6, 11, 16 and 18-19 under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 4,682,708 issued to Pool (POOL) and in view of U.S. Patent No. 6,485,797 issued to Smith et al. (SMITH). Claims 23, 27 and 31 were rejected under 35 U.S.C. §103(a) as being unpatentable over POOL in view of SMITH and further in view of U.S. Patent No. 5,600,958 issued to Henning et al. (HENNING). In addition, Claims 33-39 were rejected under 35 U.S.C. §103(a) as being unpatentable over POOL in view of SMITH in further view of HENNING and in further view of U.S. Patent No. 4,892,193 issued to Thomas (THOMAS).

Summary of Applicants' Response

Applicants have cancelled Claims 2, 31 and 34. In addition, Applicants have amended independent Claims 1, 23 and 33 and dependent Claims 3-5, 9, 32 and 39 in order to clarify the invention and incorporate subject matter which is believed to be allowable over the relevant prior art references cited thereagainst. The proposed amendments are not believed to add new matter nor necessitate further searching.

The Present Invention as Recited in Amended Independent Claims 1, 23 and 33

Independent Claim 1 has been amended to incorporate the feature of cancelled Claim 2 and to clarify the novel features of the present invention in order to avoid the cited prior art references.

In addition, independent Claim 23 has been amended to incorporate the feature of cancelled Claim 31 and to clarify the novel features of the present invention. Likewise, independent Claim 33 has been amended to incorporate the features of cancelled Claims 34 and 38 as well as to clarify the present invention.

As recited in independent Claim 1 as amended, the present invention is directed to an insulated cryo-pack that is adapted for maintaining a temperature of a material such as may be required during air and/or surface shipment. The cryo-pack of the present invention is specifically adapted to maintain the temperature of the material at -40°F for 96 hours in an environment where the ambient temperature may reach 40°F. In its broadest sense, the cryo-pack comprises an inner container, a barrier bag filled with dry ice pellets, and an outer container for containing the barrier bag and inner container. The material is contained within the inner container and the barrier bag surrounds the exterior of the inner container. The dry ice pellets may have a thickness of at least 2 inches on all sides of the inner container.

As recited in independent Claim 23 as amended, the cryo-pack may additionally include a plurality of internal containers for individually packing materials therein. The internal containers are contained within the inner container. The dry ice-filled barrier bag surrounds the inner container and is itself disposed within the outer container. The invention as recited in independent Claim 33 as amended is similar to independent Claim 1 with the addition of foam panels disposed on interior surfaces of the outer container and further including at least one spacer extending about the inner container to form a cavity between the inner container and the foam panels.

Rejection of Independent Claim 1 Under 35 U.S.C. 103(a)

Independent Claim 1 was rejected under 35 U.S.C. §103(a) as being unpatentable over POOL in view of SMITH.

In the Office Action, the Examiner indicates that POOL “explicitly teaches a plurality of dry ice pellets surrounding the inner contents..., an outer container (11) for disposing the inner contents and dry ice pellets therein; a barrier bag filled with dry ice pellets and wrapping the inner contents...” The Examiner indicates that while POOL does not explicitly teach an inner container, SMITH teaches an inner container disposed within an outer container for a temperature controlled shipping apparatus. The Examiner indicates that “it would have been obvious...to combine the temperature controlled shipping apparatus as taught by POOL with the inner container taught by SMITH since an inner container is simply one type of the contents the outer container is designed to hold.” (Office Action, Pages 2-3).

Establishing a *Prima Facie* Case of Obviousness

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art references (or references when combined) must teach or suggest all of the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must be both found in the prior art, and not based on Applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 U.S.P.Q.2d (BNA) 1438. Sources that may be used to provide a motivation to

combine references include the nature of the problem to be solved, the teachings of the prior art, and the knowledge of persons of ordinary skill in the art. *In re Rouffet*, 149 F.3d 1350, 1357, 47 U.S.P.Q.2d 1453, 1457-58.

Applicant respectfully submits that a *prima facie* case of obviousness has not been established based on the cited references. As is discussed in detail below, all of the pending claims are believed to be allowable. Reconsideration and withdrawal of the 103 rejections is respectfully requested.

No Motivation to Combine The Prior Art References - Traversal of Rejection of Claim 1

Claim 1 is believed to be allowable because there is no motivation to combine POOL with SMITH. POOL is understood to disclose a paperboard shipping container having a gas impervious lining disposed on an exterior of a storage compartment. The storage compartment itself is comprised of insulating material such as open-celled, non-rigid foam panels enclosing the storage compartment.

SMITH is understood to disclose a temperature-controlled container utilizing a sorption cooling unit to maintain the internal temperature of the container below ambient temperature. The sorption unit of SMITH is understood to operate by cooling the interior of the container and rejecting waste heat to the exterior of the container. More specifically, the temperature-controlled container of SMITH may comprise an insulated box into which may be placed an evaporator. At least one absorber may be mounted upon an external surface of the insulated box with the absorber being fluidly connected to the evaporator by vapor passageways. As understood, the SMITH device may further include a liquid reservoir mounted on an exterior of the insulated box and also being fluidly connected to the evaporator. Temperature maintenance of the SMITH device is

understood to occur when liquid contained within the liquid reservoir at ambient pressure travels into the evaporator which is at a much lower pressure. Upon entry into the lower pressure environment of the evaporator, the liquid vaporizes which cools the interior by removing heat therefrom. The vaporized liquid then enters the absorber which itself generates heat that is, in turn, released to the interior of an outer container. The outer container is understood to include vent holes to assist in the dissipation of heat from the absorbers.

Firstly, Applicants submit that there is a difference in the manner in which the problem of maintaining temperature of an inner container is solved by SMITH and POOL and that such difference in solving the problem does not lead to any suggestion or motivation for combining POOL with SMITH. More specifically, the manner in which POOL maintains the temperature of the storage compartment is completely different than the sorption cooling system of SMITH. For example, POOL discloses a means for maintaining the temperature of the storage compartment by including foam panels along an interior of a paperboard box. A continuous vapor barrier (i.e., a plastic bag 12 as shown in Figure 1 of POOL) is indicated as being a feature upon which the “invention is predicated...[and] that a vapor barrier surround the cold storage compartment formed by the open celled insulative [foam panels] effectively and efficiently increases the ability of the open celled foam to maintain the desired temperature range.” (Col. 3; lines 26-33). Notably, POOL specifically discloses the need for a refrigerant “such as dry ice [which] can be directly admitted to the compartment, or wet ice can be introduced in appropriate refrigerant containers to produce or promote the desired temperature to be maintained...” (Col. 3; lines 11-16).

On the contrary, SMITH is understood to specifically exclude the use of traditional cooling systems commonly used in shipping containers. In fact, SMITH explicitly disclaims the use of

traditional refrigerant and foam (i.e., such as expanded polystyrene (EPS)). For example, SMITH recites that traditional systems such as “a cardboard box into which EPS [foam] sheets have been cut and placed...then filled with dry ice” is deficient in that “existing ice/EPS cooling systems [are] unsatisfactory because of increased environmental concerns associated with disposal of large quantities of EPS...along with a high cost of shipping.” (Col. 1; lines 50-52 and lines 62-65).

Therefore, Applicants submit that the method by which POOL solves the problem of maintaining the temperature of a material in an internal container is *totally unrelated* to the manner in which such problem is solved by SMITH. Therefore, Applicants submit that the manner in which temperature is maintained in an internal container by POOL and SMITH may not be used as motivation to combine these two references.

Secondly, Applicants submit that nothing in the disclosures of either POOL or SMITH can be interpreted as providing any suggestion or motivation to combine these two references. For example, as was earlier mentioned, SMITH explicitly disclaims the use of a refrigerant such as dry ice as is claimed in amended independent Claim 1 of the application. Even further, SMITH is understood to be silent with regard to the concept of surrounding an inner container with the barrier bag filled with dry ice pellets wherein the barrier bag and inner container are disposed within an outer container. Likewise, Applicants submit that POOL also fails to disclose or suggest the combination of these particular features of Claim 1. For example, although POOL discloses the use of an outer container having a barrier bag and dry ice as a refrigerant, POOL fails to disclose the concept of utilizing an inner container surrounded by a barrier bag filled with dry ice pellets and which is collectively disposed within an outer container. Therefore, neither POOL or SMITH can be used as a source to provide a suggestion or motivation to combine these two references.

Finally, Applicants submit that knowledge that is generally available to one of ordinary skill in the art would not lead to a suggestion or a motivation to combine POOL with SMITH. More specifically, Applicants submit that any specific understanding or principle within the knowledge of a skilled artisan would not have provided the motivation to include the inner container (i.e., insulated box 612 shown in Figure 6) as taught by SMITH for the purpose of disposing material therein wherein the inner container is then surrounded by the barrier bag filled with dry ice pellets. The mere fact that the outer containers of POOL and SMITH are both configured as rectangularly shaped cardboard boxes is insufficient motivation to combine the two references.

Therefore, the combination of the sorption cooling system of SMITH with the paperboard shipping container having interior foam panels as used in POOL is impermissible. Because of Applicants' belief in a lack of any suggestion or motivation to combine POOL with SMITH to arrive at Applicants' invention, the Examiner's rejection of independent Claim 1 under 35 U.S.C. §103(a) is believed to be overcome. Because amended independent Claim 1 is believed to be allowable, all claims depending therefrom, namely, Claims 3-22, are also believed to be allowable.

Rejection of Independent Claim 23 Under 35 U.S.C. 103(a)

Claim 23 was rejected under 35 U.S.C. §103(a) as being unpatentable over POOL in view of SMITH in further view of HENNING.

In the Office Action, the Examiner indicates that POOL and SMITH “explicitly teach all of the elements of the present invention as stated above, but do not teach a plurality of internal container for individually packing materials therein.” The Examiner then indicates that

HENNING “explicitly teach a plurality of internal containers for individually packing materials therein (40; Figures 1 and 2).” The Examiner then indicates that it “would have been obvious to one of ordinary skill in the art...to combine the temperature-controlled shipping apparatus as taught by POOL and SMITH with the internal containers as taught by HENNING since certain applications may require multiple sealed goods to be shipped simultaneously and it would only require routine skill in the art to multiply the concept of a single container used for single goods.” (Office Action, Page 7).

Traversal of Rejection of Claim 23

Claim 23 is believed to be allowable because there is no motivation to combine POOL with SMITH and HENNING. As was discussed above with regard to the rejection of Claim 1, neither POOL nor SMITH are understood to provide a suggestion or motivation to combine these two references. More specifically, due to the wholly different manner in which POOL and SMITH solve the problem of maintaining the temperature of an inner container, any specific understanding or principle within the knowledge of one skilled in the art would not have provided the motivation to combine the inner container of SMITH within the outer container having the barrier bay filled with dry ice of POOL. As was earlier mentioned, the mere fact that POOL and SMITH both disclose the use of a rectangular cardboard box as the outer container is insufficient motivation to combine these two references. Therefore, Applicants’ belief in a lack of any suggestion of motivation to combine POOL with SMITH to arrive at the invention as claimed in independent Claim 23 is believed to overcome the Examiner’s rejection thereof under 35 U.S.C. §103(a).

Secondly, Applicants submit that HENNING also fails to provide any suggestion or

motivation to combine with either POOL or SMITH. For example, HENNING explicitly disclaims the use of refrigerants such as dry ice due to certain characteristics thereof. More specifically, HENNING recites that “dry ice may freeze the specimen material. Additionally dry ice gives off vapors that may pose a danger in some shipping modes such as air transport.” (Col. 2; lines 31-34). Furthermore, the temperature at which HENNING maintains the material within its inner container is significantly different than the temperature sustainable using Applicants’ invention. For example, HENNING discloses that “the shipper 10...maintain[s] a pre-determined temperature range typically between 0.5°C and 5.0°C for a given period of time, typically at least 24 hours.” (Col. 6, lines 66 to Col. 7, line 2). The temperature range of 0.5°C and 5.0°C is equivalent to a temperature of 32.9° to 41°F. In contradistinction, Applicants’ invention advantageously is capable of maintaining a temperature of -40°F. Moreover, Applicants’ invention is specifically configured to maintain such temperature for a duration of up to 96 hours as compared to the HENNING device which is limited to maintaining its much higher temperature for a duration of only up to 24 hours.

Furthermore, the HENNING device is structurally distinguished from that which is claimed in Applicants’ invention under Claim 23. For example, Figure 2 of HENNING illustrates a plurality of primary safeguard assemblies (40) contained within a layer of thermal insulation (70) which is itself encapsulated by liner (80) for containment within the secondary safeguard assembly (60). (Col. 12; lines 20-25).

Conversely, Figure 3b of the application illustrates the inner shipping container 30 (i.e., the structural equivalent of HENNING’s primary safeguard assembly 40) encapsulated by barrier bag 36 (i.e., the structural equivalent of HENNING’s liner 80) which is disposed within a compartment

defined by a plurality of foam panels mounted against interior walls of the outer shipping container 37 (i.e., the structural equivalent of HENNING's secondary safeguard assembly 60). As such, HENNING fails to disclose a system wherein the barrier bag (HENNING's plastic liner 80) is disposed internally to foam panels as shown in Figure 3b of the application.

Therefore, in addition to the impermissible combination of POOL and SMITH as discussed above with reference to the rejection of Claim 1 and applied to Claim 23, Applicants submit that the combination of HENNING's shipper with the POOL and SMITH devices is impermissible. Because of Applicants' belief in any lack of suggestion or motivation to combine HENNING with POOL and/or SMITH to arrive at Applicants' invention, the Examiner's rejection of Claim 23 under 35 U.S.C. §103(a) is believed to be overcome. Because amended independent Claim 23 is believed to be allowable, all claims depending therefrom, namely, Claims 24-30 and 32, are also believed to be allowable.

Rejection of Independent Claim 33 Under 35 U.S.C. 103(a)

Claim 33 was rejected under 35 U.S.C. §103(a) as being unpatentable over POOL in view of SMITH in further view of HENNING and in further view of THOMAS.

In the Office Action, the Examiner indicates that POOL, SMITH and HENNING "teach elements of the present invention, but do not teach at least one spacer disposed around the inner container to immobilize the inner container as to form a cavity between the inner and outer containers." The Examiner then indicates that THOMAS "explicitly teaches at least one spacer disposed around the inner [container] within the foam panels such that a cavity is formed between the inner [container] and foam panels." (Office Action, Pages 10 and 11).

The Examiner then indicates that it “would have been obvious to one of ordinary skill...to combine a temperature-controlled shipping apparatus as taught by POOL and SMITH in view of HENNING with a spacer cavity as taught by THOMAS since spacers are commonly used in shipping applications to advantageously protect the shipping contents.” (Office Action, Page 11).

Traversal of Rejection of Claim 33

Claim 33 is believed to be allowable because there is not motivation to combine THOMAS with POOL, SMITH and HENNING. THOMAS is understood to disclose a packaging system for packaging planar objects such as paintings. The THOMAS packaging system includes plastic spacers to protect the artwork from impact damage.

As was earlier mentioned, Applicants submit that it is impermissible to combine POOL and SMITH as references due to the wholly different nature in which such references solve the problem of maintaining the temperature of a material within an inner container as described above with reference to the rejection of Claims 1 and 23. In this same regard, Applicants submit that THOMAS solves a wholly different problem from that which is purportedly solved by POOL and SMITH. More specifically, THOMAS discloses that it solves the problem of preventing “harm [that] may result from impact forces due to droppage and ripping and tearing forces due to handling and stacking.” (Col. 1; lines 33-36).

In contrast, Applicants’ invention is understood to solve the problem of maintaining the temperature of an inner container in order to preserve material being shipped. Applicants submit that the problem solved by Applicants’ invention (i.e., maintaining the temperature of an inner container during shipment) is *totally unrelated* to the problem solved by THOMAS (i.e.,

preventing impact damage during shipping of artwork). Therefore, Applicants submit that the problem solved by THOMAS may not be used as a source to provide a motivation to combine these two references. Secondly, Applicants submit that nothing in the disclosure of THOMAS, POOL, SMITH or HENNING can be interpreted as providing any suggestion or motivation to combine these references. Even further, THOMAS is understood to be silent with regard to the concept of an insulated cryo-pack comprising an inner container, an outer container, a plurality of foam panels, at least spacer around the inner container, and a barrier bag filled with dry ice pellets surrounding the inner container.

Likewise, Applicants submit that THOMAS fails to disclose or even suggest the particular features of Claim 33. Therefore, neither THOMAS nor POOL, SMITH or HENNING can be used as a source to provide a suggestion or motivation to combine these references. The mere fact that THOMAS utilizes a rectangularly shaped outer box as does POOL, SMTH and HENNING is insufficient motivation to combine such references. Therefore, the combination of the spacers of THOMAS with the container systems of POOL, SMITH and HENNING is impermissible. Because of Applicants' belief in the lack of any suggestion or motivation to combine THOMAS with POOL, SMITH and/or HENNING to arrive at Applicants' invention, the Examiner's rejection of Claim 33 under 35 U.S.C. §103(a) is believed to be overcome.

Because amended independent Claim 33 is believed to be allowable, all claims depending therefrom, namely, Claims 35-37 and 39, are also believed to be allowable.


Conclusion

In view of the foregoing, the application is believed to be in condition for allowance. Entry of the amendments and issuance of a Notice of Allowance is therefore respectfully requested. Should the Examiner have any suggestions for expediting allowance of the application, please contact Applicant=s representative at the telephone number listed below.

If any additional fee is due, please charge deposit account 19-4330.

Respectfully submitted,

Date: Apr 28, 2006

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